

What is claimed is:

1. An apparatus for roasting beans comprising:

a chamber for containing beans;

a temperature adjusting means for heating or cooling the beans and the chamber;

5 a temperature measuring means for measuring a temperature of the beans and a temperature of the chamber;

a controller for calculating a first temperature of the beans and a first maintain time based on the weight and the type of raw beans,

10 and for controlling the temperature adjusting means in order to maintain the temperature of the chamber as a first chamber temperature during the first maintain time when the temperature of the beans reaches the first temperature of the beans.

2. The apparatus according to claim 1 further comprising a water provider, wherein the water provider comprises:

15 a water tank for containing water;

a water pump located on one-side of the water tank for outputting the water; and

a nozzle located on an inner or an outer of the chamber for providing the beans of which the roasting process is completed with the water outputted from the water pump,

20 wherein the controller calculates an amount of the water according to the weight of the raw beans, and the controller controls the water pump to operate so as to shoot out the

calculated amount of the water through the nozzle after the roasting process.

3. The apparatus according to claim 1 wherein the chamber comprising :

a flat wire fixed vertically and spirally in the chamber which has plurality of holes

5 for transferring the beans toward or backward according to the rotational direction; and

metal bearings having each protective cap fixed in the two ends of an axis of the chamber,

wherein the controller repeatedly controls a motor for driving the chamber, the motor is controlled in order to rotate the chamber in one direction during a first predetermined time, 10 and then in order to rotate the chamber in the other direction during a second predetermined time when the motor is completely stopped.

4. The apparatus according to the claim 1, wherein the temperature adjusting means for heating is a halogen light heater.

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5. The apparatus according to the claim 1 further comprising:

a cool air blower mounded under the chamber for blowing into the chamber external air; and

an exhaust fan for exhausting inner air of the chamber, wherein the exhaust fan 20 operates with a first speed in order to exhaust smoke within the chamber during the roasting

process, and the exhaust fan operates with a second speed in order to cool down the beans after the roasting process, wherein the first speed is slower than the second speed.

6. The apparatus according to the claim 1 further comprising a damper which  
5 comprises a first shutter located near the air inlet for exhausting smoke of the chamber by being automatically opened according to predetermined conditions; and

a second shutter located parallel with the first shutter for being automatically opened when the roasting process is completed,

wherein the first shutter is firstly opened during a predetermined time when the  
10 temperature of the chamber becomes a predetermined temperature, and is secondly opened during the first maintain time when the temperature of the beans becomes the first temperature of the beans, and is lastly opened when the temperature of the beans becomes a second temperature of the beans.

7. The apparatus according to the claim 1 further comprising a smoke exhaust means  
15 for burning and exhausting smoke generated during the roasting process.

8. The apparatus according to the claim 7 wherein the smoke exhaust means  
comprises:

20 a smoke eliminator for burning the smoke discharged from the chamber; and

a funnel for exhausting the smoke burnt in the smoke eliminator.

9. The apparatus according to the claim 8, wherein the smoke eliminator includes:

an inner housing for connecting to the funnel and to a smoke exhausting duct at the

5 upper part and the lower part respectively;

a separating plate mounted in the center of the inner housing having a space from the  
funnel and the smoke exhausting duct respectively;

a first open coil heater for firstly burning the smoke streamed by through the smoke  
exhausting duct; and

10 a second open coil heater for secondly burning the first burned smoke, wherein the  
second burned smoke exhausted through the funnel to external of the coffee roaster.

10. The apparatus according to the claim 7 wherein the smoke exhaust means  
comprises:

15 an exhaust fan mounted on the upper right side or left side of the chamber for  
periodically operating during a predetermined time period; and

an smoke eliminator for burning the smoke exhausted by operating the exhaust fan.

11. The apparatus according to the claim 10, wherein the smoke eliminator includes:

20 an inner housing including a bottom connected to the smoke exhausting duct and a

top having a plurality of holes;

a separating plate mounted in the center of the inner housing having a space from the top and the bottom respectively;

a first open coil heater for firstly burning the smoke streamed by through the smoke  
5 exhausting duct; and

a second open coil heater for secondly burning the first burned smoke.

12. The apparatus according to the claim 1 further comprising a turntable located at the center of the base plane for rotating.

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13. The apparatus according to the claim 1 further comprising a providing means for providing the raw beans into the chamber, wherein the providing means comprises:

a hopper for loading the raw beans into the chamber;

a cover hinged at a top of the hopper and attaching a mirror at an inner side; and

15 a micro-switch for opening or shuttering an providing door located between the hopper and the chamber accordingly as whether the cover is opened or shuttered.

14. The apparatus according to the claim 1 further comprising a discharging means which is composed of:

20 a discharging door located at the lower part of the chamber for discharging the beans

from the chamber by being opened during a predetermined time period when the temperature of the beans is at a predetermined temperature; and

a transferring means lengthwise mounted under the chamber for moving the beans to the front part of the beans collector.

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15. The apparatus according to the claim 14 wherein the transferring means is composed of :

a rotational shaft having a flat wire which winds spirally on circumference of the rotational shaft; and

10 a duct having a half-cylinder shape and mounted under the rotational shaft.

16. The apparatus according to the claim 14 further comprising:

a chaff collection tray mounted under the chamber for collecting a chaff dropped through the plurality of holes of the chamber; and

15 an interlock switch for turning on or off the heater and the motor by detecting whether the chaff collection tray is inserted or withdrawn from the coffee roaster body.

17. A method for roasting beans, the method comprising steps of:

a) storing weight of raw beans;

20 b) discriminating whether certain type of the raw beans has been inputted;

c) calculating a first temperature of beans and a first maintain time based on the weight of the raw beans and the type of the raw beans according to the discriminated result; and

d) adjusting a temperature of the beans and a temperature of a chamber by heating or cooling;

wherein the step d) includes the steps of:

d-1) maintaining the temperature of the chamber as a first chamber temperature during the first maintain time when the temperature of the beans reaches the first temperature of the beans; and

d-2) adjusting the temperature of the beans which is lower than a predetermined temperature of the beans.

18. The method according to the claim 17 wherein the step c) includes steps of:

c-1) automatically being set as a predetermined type when the type of the raw beans is unselected in a discriminated result of the step b);

c-2) setting on a basis of the first temperature of the beans when the type of the raw beans is the predetermined type and the weight of the raw beans exceeds a predetermined weight; and

c-3) decreasing the first temperature of the beans by a predetermined degrees when the weight of the raw beans is less than the predetermined weight.

19. The method according to the claim 18 wherein the step c) further includes step of c-4) increasing or decreasing the first temperature of the beans according to selection of the type of the raw beans when the type of the raw beans is inputted by the user.

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20. The method according to the claim 17 wherein the step d) further includes step of:

d-3) decreasing or increasing a time period based on the an applied voltage when the temperature of the chamber is a predetermined temperature.

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